example and can be modified depending on the size of the transparent display device and applications.

Hereinafter, various characteristics of the transparent OLED device according to the present disclosure will be described.

According to another characteristic of the present disclosure, the device further includes one or more elements disposed on the first circuit board, one or more elements disposed on the second circuit board, and a plurality of connecting lines on the non-display area of the transparent substrate electrically connecting at least one of the elements on the first circuit board and at least one of the elements on the second circuit board.

According to still another characteristic of the present disclosure, said at least one of the elements on the first circuit board connected to said at least one of the elements on the second circuit board via the plurality of the connecting lines is configured to receive power from the first power supply.

According to still another characteristic of the present disclosure, said at least one of the elements that receives power from the first power supply is a processor configured to send a signal to and/or receive the signal from said at least one of the elements on the second circuit board via the plurality of connecting lines.

According to still another characteristic of the present disclosure, the device further includes a second power line formed on the non-display area of the transparent substrate in the non-display area thereof, wherein the plurality of connecting lines is disposed between the second power line and the display area.

According to still another characteristic of the present disclosure, the plurality of connecting lines includes a plurality of signal lines.

According to still another characteristic of the present disclosure, the plurality of the signal lines are disposed on a same layer and spaced apart from one another.

According to still another characteristic of the present disclosure, at least one of the signal lines is disposed on a different layer from another signal line without being overlapped by one another.

According to still another characteristic of the present disclosure, a width of each of the signal lines is equal to or less than 100 μm.

According to still another characteristic of the present disclosure, the plurality of the connecting lines further include at least one detection signal line, wherein the detection signal line is disposed on a different layer from a layer where said one or more signal lines are disposed on.

According to still another characteristic of the present disclosure, the detection signal line and said one or more signal lines are arranged such that at least some part of the detection signal line overlaps with some of the signal lines.

According to still another characteristic of the present disclosure, a width of the detection signal line is equal to or less than 1000 μm.

According to still another characteristic of the present disclosure, the device further includes a thin-film transistor formed on the display area of the transparent substrate in the display area thereof, the thin-film transistor having an active layer, a gate electrode, a source electrode, and a drain electrode, wherein at least one of the connecting lines is made of the same material as the gate electrode, and wherein at least one of the connecting lines is made of the same material as the source electrode or the drain electrode.

Hereinafter, various characteristics of the transparent device according to the present disclosure will be described.

According to another characteristic of the present disclosure, the plurality of the connecting lines are disposed on a same layer and spaced apart from one another.

According to still another characteristic of the present disclosure, the plurality of the connecting lines is disposed on two or more different layers without being overlapped with one another.

According to still another characteristic of the present disclosure, the plurality of the connecting lines are disposed on two or more different layers, and wherein at least one of the connecting lines on one layer at least partially overlaps with another connecting line on another layer.

According to still another characteristic of the present disclosure, the device further includes a first power supply disposed on the first substrate; and an auxiliary power line formed on the non-display area of the transparent substrate in the non-display area thereof providing power to the first power supply.

According to still another characteristic of the present disclosure, the device further includes a second power supply disposed on the second substrate, wherein the second power supply is configured to supply power to the first power supply via the auxiliary power line.

According to still another characteristic of the present disclosure, apart of the auxiliary power line overlaps with at least some of the plurality of connecting lines

The present invention has been described in more detail with reference to the exemplary embodiments, but the present invention is not limited to the exemplary embodiments. It will be apparent to those skilled in the art that various modifications can be made without departing from the technical sprit of the invention. Accordingly, the exemplary embodiments disclosed in the present invention are used not to limit but to describe the technical spirit of the present invention, and the technical spirit of the present invention is not limited to the exemplary embodiments. Therefore, the exemplary embodiments described above are considered in all respects to be illustrative and not restrictive. The protection scope of the present invention must be interpreted by the appended claims and it should be interpreted that all technical spirits within a scope equivalent thereto are included in the appended claims of the present invention.

What is claimed is:

1. A transparent display device, comprising:

a transparent substrate having a display area and a non-display area adjacent to the display area;

an organic light-emitting element on the display area of the transparent substrate;

a first power line on the display area of the transparent substrate, the first power line supplying power to the organic light-emitting element;

a first circuit board having a first power supply provided on a first side of the transparent substrate; and

a second circuit board having a second power supply provided on a second side of the transparent substrate,

wherein the first power supply is configured to receive power from the second power supply via the first power line.

2. The device of claim **1**, further comprising:

one or more elements disposed on the first circuit board;

one or more elements disposed on the second circuit board; and

a plurality of connecting lines on the non-display area of the transparent substrate electrically connecting at least one of the elements on the first circuit board and at least one of the elements on the second circuit board.